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ABSTRACT

The Educational Quality Indicators (EQI) initiative was a collaboration between Alberta Education (Alberta, Canada) and 12 school jurisdictions to develop and implement indicator systems to measure the success of the educational enterprise. Ten concurrent collaborative projects were conducted between 1989 and 1992 to develop indicator systems for a broad range of outcomes, data collection and analysis methods, and ways to report and communicate the information to different audiences. An overview confirms that EQI has had a positive impact on education in Alberta. Alberta superintendents have adopted the idea of indicator systems. Many are using the EQI materials, and the provincial department of education is also incorporating ideas and strategies into its information system. The EQI initiative has demonstrated that a large-scale reform initiative focused on producing better information about education can help improve education. While there is no single indicator system, and none is a panacea, a useful indicator system can be constructed to focus on student outcomes through multiple measures. Three tables present information about the projects. An appendix gives the table of contents from the final report on the project, "Achieving Quality," which is published separately. (Contains 19 references.) (SLD)

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Lessons from the Educational Quality Indicators Initiative

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Paper presented at the annual meeting of the Canadian Educational Researchers' Association, Ottawa, June 12, 1993

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Lessons from the Educational Quality Indicators Initiative

The Educational Quality Indicators (EQI) initiative was a collaboration between Alberta Education and twelve school jurisdictions to develop and implement indicator systems to measure the success of the educational enterprise. Its primary goal was to assist the provincial government and school jurisdictions in providing better information to improve planning, policy and decision making. Towards this end, ten concurrent collaborative action research projects were initiated in 1989 and concluded in 1992. These projects developed indicator systems that include a broad range of outcomes, methods to collect, analyze and interpret data, and ways to report and communicate the information to different audiences. Researchers, practitioners and policy makers can learn a number of lessons from the EQI initiative. New knowledge has been generated in several areas of educational inquiry and in how we view learning and teaching. The second major focus discusses the implications of managing large-scale projects for optimum impact of an innovation.

Educational Reform in Alberta

The eighties saw a new wave of educational reform in Canada, the United States, and indeed around the world. Perceived shortcomings in education, and international competition in all sectors, served as a catalyst for the current accountability and reform movements. Within this context of global educational reform, Alberta introduced a number of initiatives to improve education in the province. This reform effort was stimulated by a series of changes in the political, economic and social climate of the province. In 1982 Alberta introduced the Achievement Testing Program at grades 3, 6, and 9, and in 1984 reinstated the Diploma Examinations Program at grade 12 as part of the requirements for high school graduation. In 1984, other reform initiatives included the School Act Review, the Management and Finance Plan, the Review of Secondary School Programs, and the introduction of five evaluation policies (student, teacher, program, school, and system). Two primary beliefs influenced the reform initiatives in Alberta. First, the student is the central reason for schooling, and second, education is a purposeful endeavor that can be assessed. To assist in ensuring that these beliefs became operational, Alberta Education promoted a results-based approach to education to provide a better balance among inputs, processes and results.

The EQI Initiative

The Educational Quality Indicators (EQI) initiative was one of the projects designed to promote results-based education. Alberta Education committed $1 million to the EQI projects between 1989 and 1992. An important feature was that it introduced a collaborative model to the provincial reform initiatives. EQI participants became members of a provincial committee which discussed and recommended directions to Alberta Education in achieving results-based education.

An indicator system is a tool to focus reform and improvement. The goals, or intended benefits of implementing indicator systems, are to assess the effectiveness and efficiency of the educational enterprise, to improve education, and to provide a mechanism for accountability. The major purpose of indicator systems is to provide ENHANCED information about education for IMPROVED planning, policy, practice, and decision making. EQI was designed to produce a set of indicators, appropriate standards, and accompanying methods to measure the performance of the educational enterprise. The proposed system of measuring success took into consideration and reflects government policy and the goals of schooling. It addressed two essential questions:

1. Are students learning to their potential?
2. Is the educational system supporting student learning effectively and efficiently?

The key results expected over the three years of the EQI initiative were indicator systems that include a broad range of student outcomes, points of reference for comparing results, and an interpretative framework to describe variation among students and schools; methods to collect, analyze and interpret the data provided by the indicators; and ways to report and communicate the information to different audiences. A fundamental principle was that no single indicator, or even group of indicators, could fully describe the complexity of education. Any system would include many indicators, measured by both quantitative and qualitative methods, for selected dimensions.

The conceptual framework for the EQI initiative guided the direction of the ten concurrent action research projects and the discussion of results-based education within Alberta Education. A four-dimensional model of education was developed which consists of partners (schooling, family and society), conditions (context, inputs and processes), student outcomes (cognitive, affective and behavioral) and time (grades 3, 6,

9 and 12) (McEwen & Zatko, 1989). The model draws on the work of Carroll (1963), Hymel (1988), Walberg (1984), Oakes (1986) and Shavelson *et al* (1987). The EQI model extends the work of the above by consolidating the joint responsibility of the partners who contribute specific conditions to developing student learning over time. Education is a complex social enterprise. Focusing on schooling alone, without regard for the other influences that shape its direction, will likely not result in significant change. This model incorporates the responsibilities of the other major partners and recognizes conditions which contribute to student outcomes. For educational constituencies to determine whether or not students are making appropriate progress, it is necessary to examine results over time to determine what changes should and have been effected.

The EQI initiative set three criteria for a successful indicator system: an interpretative framework to describe variation among students and schools; student outcomes related to the educational enterprise; and points of reference for comparing results (Alberta Education, 1988). School jurisdictions that were already concerned with measuring educational quality were identified and invited to submit a proposal. The twelve school jurisdictions whose proposals were accepted represent almost half (48%) of the students in public and separate schools in the province.

Alberta Education supported the EQI initiative by providing resources (funds and consultation), information and coordination. The information included an annotated bibliography containing 350 citations, a report on methodological considerations recommending a balanced approach between quantitative and qualitative methods, and a critique of more than 90 available assessment instruments (Alberta Education, 1990). Recommended implementation strategies to minimize the negative impacts of indicator systems included the use of multiple goals, indicators, methods, levels of analysis and participants. See McEwen and Zatko (1989) for a description of the conceptual framework and implementation plan, McEwen and Chow (1991) for a discussion of issues in implementing indicator systems, and Alberta Education (1993) for the final report of the EQI initiative.

Educational Inquiry

EQI established a conceptual framework for a major reform and improvement initiative, yet permitted flexibility within that framework to accommodate participants' areas of interest. It has set a new standard for how to go about research to get maximum benefit from the investment. We have learned a great deal about project diversity, a direction for improvement, a wide range of desired student outcomes, and conditions that enhance learning and promote system effectiveness and efficiency.

The Projects – Strength in Diversity

The projects represent a diversity of approaches. Each participating school jurisdiction was responsible for its own project because each represents a community which has values it wishes to impart to its students through its goals, priorities and expectations. It was important that each project reflect these aspirations by involving its public – students, teachers, administrators, trustees, parents, and others – in discussions on which indicators to include and why. Without input from the larger community, the indicators might not provide a representative picture of the expected outcomes of the educational system.

School jurisdictions, if they are to make sense of the outcomes of their educational enterprise, need to interpret the results in terms of their local circumstances. In the process of developing a preliminary set of indicators, trying it out in their own jurisdiction and refining it on the basis of the results, participating jurisdictions took the opportunity to develop and use indicators that are flexible, responsive to local needs, have community support, and can provide them with the type of information they need for setting policies, practices and procedures.

Each of the ten projects focused on specific aspects of educational improvement and accountability. They can be grouped into three major areas – system accountability, teaching and learning, and alternative student assessment strategies. Three projects focused on *accountability*: the Lacombe/Rocky Mountain Project developed a comprehensive school system review process, Grande Prairie developed prototype school and district profiles, and Lethbridge Public developed a collaborative model for school and program evaluation. Two projects examined *teaching and learning*: Spirit River identified 26 behaviors of effective teaching and prepared a composite teacher performance baseline for the district; Fort McMurray Catholic implemented the principles of outcome-based education (OBE) in mathematics. Five projects examined *alternative*

ways to measure student success: Edmonton Public developed mechanisms for portfolio assessment and student growth, Calgary Public and Catholic developed indicators of quality student performance in art and mathematics, Brooks explored ways to measure responsible student behavior, Fort McMurray Public developed a three-level approach to measuring desirable student social outcomes, and Lethbridge Catholic developed a taxonomy of student affective behaviors.

Achieving Quality, the final report of the EQI initiative, contains a summary of the initiative and each of the ten projects. A final chapter summarizes the major accomplishments, proposes potential provincial indicators, and suggests further steps in expanding the use of indicators in school jurisdictions. The report was released at the January 1993 EQI conference organized by Alberta's association of school superintendents and attended by over 300 people. Unless otherwise noted, all project references are to this publication. The table of contents is in the appendix.

A Direction for Improvement

The indicator systems developed by the participating school jurisdictions are based on theory and practice. An extensive review of the literature during the developmental phase ensured that teams were aware of conceptual frameworks and incorporated these into developing their indicator systems. The field tests tempered theory with practical realities to ensure that indicators that survived this phase were practical and had direct application for school districts. This direction for improvement incorporated a focus on student outcomes based on the goals of schooling, a balance among cognitive, affective and behavioral outcomes, multiple ways to collect and report information, and the active involvement of educational partners (students, staff, parents, stakeholders, and the public).

The local indicator systems have support within their communities because of the active involvement of partners in their development. Several models for assessing the effectiveness and efficiency of instructional programs, delivery systems, and overall system performance were developed. In addition, several innovative alternative student assessment strategies were developed. They are valuable additions to the existing set of measurement instruments because they are based on theory and refined through practice. Other districts can use these products to assess a broader range of outcomes. These products can now be adapted by other districts and used to suit their local purposes.

Student Outcomes

An important aspect of the EQI initiative was to address the question of student learning potential. This focuses on two dimensions of the EQI model – student outcomes (cognitive, affective, behavioral) and time (grades 3, 6, 9, 12). Traditionally, reported student outcomes have tended to focus almost exclusively on the cognitive domain. If the purpose of education is to develop the whole child, then it is important to address all domains: cognitive, affective, physical and social. New knowledge generated about student outcomes in each domain is discussed in turn.

Cognitive Domain – Achievement was an important indicator of cognitive outcomes in many of the projects. Five (Lacombe/Rocky Mountain, Grande Prairie, Spirit River, Fort McMurray Catholic, and Brooks) reported student achievement measured by Alberta's achievement tests at grades 3, 6, and 9, and the diploma exams at grade 12. These tests are important because they assess the four core subjects – English, social studies, mathematics, science – and are administered annually to students at the four grade levels, thereby providing a provincial picture of achievement and a basis for comparing local results with aggregated provincial results. In addition to the usual descriptive statistics, annual provincial reports indicate the percentage of students achieving the acceptable standard (50% or higher) and the standard of excellence (80% or higher). High school students who achieve an average of 80% or higher in designated subjects qualify for a Rutherford Scholarship if they pursue post-secondary studies. This award is a powerful incentive for secondary students to excel in school.

Performance assessment was an alternative approach to paper-and-pencil measures in two of the projects which focused on providing evidence of student learning and achievement. Edmonton Public was interested in documenting student growth over time on six essential learning outcomes (communication, responsible citizenship, well-being, knowledge, inquiry, aesthetic appreciation). It developed 15 tasks which incorporated these outcomes and measured student growth on them. After two years in school, 204 students in nine pilot schools ranged in performance on 13 indicators (such as reading, making choices, making decisions) from grade 1 to grade 3. About three quarters of the students achieved at or above the grade 1 level after one year, and about nine in ten achieved at or above the grade 2 level after two years in school. However, a quarter of the students were not yet reading or writing at the grade 2 level after two years in school (Edmonton, p. 94). The Calgary project examined the product of student learning in art and the process of student thinking in mathematical problem solving. Calgary defined

quality indicators as observable characteristics of excellence established through consensus of professional judgment among practicing teachers. It developed two handbooks of exemplars of student performance for elementary, junior and senior high school – the *Educational Quality Indicators Art Handbook* and the *Problem Solving Profiles*. Both contain the quality indicators for the respective subjects, student exemplars, and expert observation of the student performance.

Two projects dealt specifically with mathematics (Fort McMurray Catholic and Calgary) and two with art (Calgary and Lethbridge Public). The approaches, however, dealt with achievement quite differently. While Fort McMurray's OBE project required 80% mastery in mathematics on units before a student could proceed, Calgary was interested in problem solving ability and rated the process of student thinking, as demonstrated by the solution, according to four categories: preliminary, partial, complete, elegant. Both projects were interested in students' perceptions as well as achievement. Fort McMurray used the *School Subjects Attitude Scales* (Nyberg & Clarke, 1983), a semantic differential to measure students' attitudes toward mathematics on three factors: evaluation, usefulness and difficulty. Calgary asked students to describe the problem (boring, challenging, confusing, fun) and to indicate how they felt after trying to solve it (discouraged, satisfied, frustrated, happy). This additional information helped teachers improve the processes provided in the classroom.

Art achievement was also assessed differently. The Lethbridge Public team developed a collaborative model for school and program evaluation based on a review of its former model and revised on the basis of evaluating its art and library programs. Student achievement in art was assessed using diagnostic tests which helped teachers determine student knowledge and performance. Participation/effort and the art project evaluation were assessed according to impressionistic criteria. In addition, student, teacher, administrator, and parents' perceptions about the art program provided multiple perspectives on the program. Calgary, on the other hand, was interested in student performance in art. Art was described by three indicators of quality: relationships, handling and meaning. Exemplars of performance at four levels are presented in the EQI-Art handbook, which contains examples of student artwork resulting from a common lesson. Each example is accompanied by student intention regarding the artwork, and an expert's observations. These exemplars demonstrate the diversity of student performance given a common stimulus and illustrate how student creativity can be documented and modeled for others. Calgary's emphasis on student intention adds an important dimension

to assessment because it demonstrates how students perceive their work and helps in interpreting it. Calgary concluded that quality art assessment is a shared experience between students and teachers which is encouraged by shared exemplars and vocabulary.

Affective Domain – Lethbridge Catholic defined the affective domain as that area of student development which includes attitudes, interests, appreciation, feelings, emotions and predispositions. It developed a model of affective learning and a taxonomy of student behaviors in five areas: self-worth, interpersonal relationships, world awareness, learning, and spiritual life. Each of these five indicators is expressed and observed through three behaviors which are dynamic and constructive, and can be observed and celebrated as signs of learning and growth. *A Celebration of Learning* contains three observable behaviors for each of the five indicators and seven typical actions that represent each behavior. For example:

(Indicator) LEARNING

(Behavior) 10. Shows a desire to learn and to search for truth by being open and receptive to learning, affirming it and reflecting it with happiness, enthusiasm and satisfaction.

(Typical Actions)

1. Is ready to learn at school or at home.
2. Is eager and enthusiastic to learn.
3. Comes to school happily and willingly.
4. Makes conscious choices to learn.
5. Learns from others.
6. Shows interest in learning.
7. Tries to verify.

In total, there are 15 behaviors and 105 typical actions. The intent of this taxonomy and its accompanying instruments is to nurture desirable behavior. The instruments include a class checklist to allow for a quick method of recording reminders of observations, and self-evaluations for students (separate versions for primary (grades 1-3), elementary (grades 4-6) and secondary (grades 7-12). The results of the project showed that affective learning was addressed by describing behaviors which are desirable; affirming students when desirable behaviors are observed; conferring with students and parents regarding the absence of specific behaviors; and teaching, modeling, and valuing behaviors identified as indicators

of affective learning (Lethbridge RCSSD No. 9, 1993, p. 20). The authors recommended that Alberta Education adopt the definition of a student "working to potential" as:

> a student who keeps trying and does not give up. Potential is a dynamic, continuing condition not a state to be realized. It follows that the criterion for checking any feedback on student performance is whether it allows and encourages students to keep trying. The skill of making choices becomes central for students (ibid, p. 26).

This project provides a valuable model for the affective domain that can be used by students, teachers and parents to help students develop positive behavior. Cooperation between the home and school is seen as essential in helping students develop their potential. The materials and procedures are intended for classroom use and were designed to be simple, defensible, observable, time efficient and useful. The descriptors allow teachers to sharpen their perceptions and base their instructional and reporting decisions on direct observation of behavior which is dynamic, active and vital. Observations of affective learning are noted, reported and celebrated. What has not yet been learned is identified, and what can be done about it is discussed with the student, parent and teacher (ibid).

Social Domain – Fort McMurray Public developed a model of social competence. It used a systems perspective based on a modified CIPP model as the conceptual framework. The team then cross-referenced a number of existing assessment instruments to the desirable social outcomes: behaviors, perceptions, and social appropriateness. These instruments were then field-tested in selected classrooms to confirm the quality of data gathered and to review the ease and practicality of instrument administration. The results of the field test indicated that teachers were uncomfortable in administering the tests, and in analyzing the results. The instruments were considered "impractical" for use with whole classes because of the amount of time taken to administer them, and the low return of parents' ratings of their children on the instruments. The project team subsequently developed a three-level approach to measuring social skills. The *first level* was teacher reports to parents, at report card time, of the social development of their children. Each teacher rated students as being well developed, developing appropriately, or needing further development. The ratings were based on personal factors, interpersonal factors, social reasoning skills, and classroom behaviors. If any of the students, parents, or teachers wished or required a more detailed assessment (*level two)*, the district's *Social Skills Diagnostic Screen* (developed for the EQI project) would be completed by the

teacher for use in providing a rating for the report card, forming the basis for discussion with parents and/or the student, or for developing a moderate program of remedial action. A form could also be completed by the student, the parents, and a composite student profile compiled for discussion. If detailed knowledge of the student's social development was required (*level three)*, the student would be referred to a counselor for further assessment and the development of an Individualized Program Plan. This practical approach meant that for the majority of students, the teacher was able to assess social development and report it to parents. The district's report cards were revised to incorporate the new approach.

The *Social Skills Diagnostic Screen* (SSDS) consists of four sections representing investigations of the same four areas identified at level one. Each section contains a series of simple to administer and score questions. In total, 44 questions are rated on a five-point scale (rarely, occasionally, about half time, often, almost always). The screen may be administered in either individual or group settings, and may be completed by the student, a student's peer, the teacher, a parent, or any other individual known to the subject in other than a casual manner. The screen is designed for school-aged subjects across all grade levels. Administration time varies from 10 to 15 minutes with older subjects to 20 to 30 minutes with younger subjects who need to be interviewed on an individual basis (Fort McMurray Public, p. 128). The SSDS was field-tested to establish its validity and reliability. The screen's practicality, ease of administration, and guidelines for interpreting results make it attractive for districts that want to assess students' social skills. In addition to an administration manual, the project produced an activity manual to help teachers develop students' social skills. These materials are welcome additions to the existing instruments available for measuring and developing social skills. Social expectations and outcomes have been integrated into the district's policy and report cards, and became a priority in the 1992-93 school year.

Behavioral Domain – Brooks developed a set of indicators of responsible student behavior in schools: high expectations; respect and recognition; pride in self, others, home, school and community; courteous, supportive, caring and sharing attributes; and mutual trust and communication. In the last year of the project, Brooks involved its community in affirming and supporting student behavior. These Character in Our Community meetings

led to a set of beliefs. The community defined character as:

> the ability to identify the elements of a circumstance or situation, to determine one's most constructive role in it, to carry out that role directly, to sustain it as long as necessary, and to learn from the consequences of one's actions (Brooks, p. 119).

A set of 16 belief statements followed this definition. For example:

1. Good character is respecting yourself and others. No one has the right to take (without consent), harm or destroy another person's physical or mental well-being. No one has the right to devalue the character of another.
3. The difference between rights, responsibilities, and privileges must be recognized.
10. Community contributions are made by those who wish to institute improvement.
12. An individual is accountable for personal actions and must live with the consequences (ibid.)

Behavior also includes the physical domain. The Lacombe/Rocky Mountain project included physical well-being as part of personal learning, and used the *Canada Fitness Award* (Fitness Canada, 1984) and two locally developed measures, the *Adolescent Health Questionnaire* and selected questions on the *Satisfaction Survey*, to assess physical well-being. Grande Prairie also incorporated the Canada Fitness Award into its set of measures to assess student outcomes.

Potential Provincial Indicators

A major purpose of the EQI initiative was to develop a set of indicators for a provincial indicator system. At the fifth provincial meeting in January 1992, EQI partners discussed potential provincial indicators, effective practices, follow-up plans and issues. Participants recommended that provincial indicators should:

- focus on student outcomes
- be based on the goals of schooling and desirable personal characteristics
- represent a balance among cognitive, affective and behavioral outcomes
- provide corollary evidence (tests, surveys, interviews, records)
- provide multiple perspectives (students, staff, parents, stakeholders, the public)

The student indicators for which there was consensus include achievement, participation, creativity, graduation, attitudes, self-esteem, satisfaction, behavior, responsibility, and fitness. Each indicator is tied to one or more of Alberta's goals

of schooling and the desirable personal characteristics. Multiple measures and sources are recommended for each student outcome. This broader range of student outcomes contributes substantially to the existing information on students and complements the currently available information on context, inputs/resources and outcomes. Table 1 presents the indicators, measures, and sources for student outcomes for which there was consensus to include in a provincial indicator system.

The proposed indicators can serve both provincial and local needs. Alberta's achievement testing and diploma examination programs provide districts with annual results for their students. Adding indicators of participation and completion provides a more comprehensive picture of student success. Whereas achievement provides a measure of academic excellence, participation provides an indication of equity. Together a better picture of performance results. Moreover, exemplary products by students kept in a portfolio or on a videotape provides evidence of the diversity of student performance. The proposed indicators can, therefore, not only be aggregated and reported at the provincial level, but also at the district and school levels. Those involving student diversity and nonacademic areas can be collected and reported locally. Jurisdictions are free to tailor information reports to their publics based on local priorities and expectations. Therefore, accountability can be served both provincially and locally, while respecting local autonomy.

Measuring indicators in multiple ways gives districts confidence in the information provided by a variety of sources. Provincial sources provide common indicators which ensure comparability among districts and provide an overall picture for the province. For example, when achievement is measured by provincial achievement tests and diploma exams, Rutherford Scholarships, and performance assessments, districts can see how well students at different levels (grades 3, 6, 9, 12) compare to provincial standards. Trends over time indicate whether improvement is occurring.

Many of the products can be used by other districts immediately. For example, the *Social Skills Diagnostic Screen* can measure student social skills and *A Celebration of Learning* describes student affective behavior. Schools are microcosms of society, and social and affective skills are important areas for student growth and development. Moreover, Calgary's *EQI-Art Handbook* and the *Problem Solving Profiles* provide exemplars of student performance and expert analysis that can help teachers identify quality work and students produce it.

Table 1

Potential Provincial Indicators

Goals[1]	Indicator	Measures	Source(s)
Students:			
1, 2, 3	achievement	grades 3, 6, 9 achievement tests grade 12 diploma examinations Rutherford Scholarships performance assessment	students
1, 2	participation	percentage of students taking courses and writing tests/exams	district
1, 2, 7	creativity	evidence of exemplary work kept in portfolios (student products, videos)	students
1 - 7	graduation	percentage of students who graduate from high school	district
1, 2	attitudes	*School Subjects Attitude Scales* [2] other attitude surveys	students
4	self-esteem	available instruments [3] student surveys observation	students teachers, parents
1 - 7	satisfaction	satisfaction surveys personal interviews	students, teachers, public
4 - 7	behavior	*A Celebration of Learning* [4] *Social Skills Diagnostic Screen* [5]	students, teachers, parents
5, 6	responsibility	homework completion attendance vandalism	students district district
4	fitness	Canada Fitness Award	students

[1] Goals of schooling: 1 communication, 2 content, 3 skills, 4 well-being, 5 citizenship, 6 world of work, 7 desirable personal characteristics. Goals 1 and 3 are cognitive in nature, goal 2 contains both cognitive and affective aspects, and goals 4 to 7 essentially encompass all three domains.

[2] Students' attitudes toward subjects are assessed on three factors: evaluation, usefulness, difficulty.

[3] There are several instruments available. Consult the *EQI Inventory of Assessment Instruments*.

[4] Student behaviors are described in five groups which show learning in: self-worth, relating to others, world awareness, learning, spiritual life. See the Lethbridge Catholic report.

[5] Student behaviors are categorized into four areas: personal factors, interpersonal factors, social reasoning skills, classroom behaviors. See the Fort McMurray Public report.

Source: Alberta Education, *Achieving Quality*, 1993, p. 151.

System Effectiveness and Efficiency

EQI's second major question asked if the educational system is supporting student learning effectively and efficiently. This question relates primarily to the partners (schooling, family, society) and conditions (context, inputs, processes) of the conceptual framework. While all projects dealt with this through the type of support they provided in helping students achieve desired learning outcomes, three projects focused on system accountability, and two on teaching and learning.

The Lacombe/Rocky Mountain project developed a comprehensive system review incorporating student, teacher, program, school and system evaluations. Each type of student outcome was tied to a particular goal of student learning and then indicators, measures, comparators and grades identified for each. An example follows.

Intellectual Learning: Develop knowledge, skills and positive attitudes in language and communication.

Outcomes	Indicators	Measures	Comparators	Grades
cognitive	achievement	language arts achievement test	provincial and system results	3, 6, 9
		English 30 and 33 diploma exams	provincial and system results	12
affective	attitude	*School Subjects Attitude Scales*	test norms	6, 9, 12
behavioral	participation in achievement tests and diploma exams etc	document review	provincial rates	3, 6, 9, 12

Source: Lacombe/Rocky Mountain Project, *Achieving Quality*, 1993, p. 17.

Conditions and processes included access to schooling, press for achievement, and professional teaching conditions. The project team identified indicators and measures for each area (home, classroom, school and system) for the three conditions. Table 2 presents examples from the full set. The comprehensive nature of the system review provides a model for other districts wishing to follow this approach. The 1991-92 results serve as a benchmark for subsequent reviews at five-year intervals with the intervening four years focusing on implementing needed improvements.

Table 2

Examples of the Lacombe/Rocky Mountain Indicators of Conditions and Processes Affecting Student Achievement

Condition	Area	Indicator	Measure
access to schooling	home	family structure socioeconomic status student mobility	survey, document review
press for achievement	home	attitudes and actions of importance to education	survey
access to learning	classroom	instructional presentation etc	self-evaluation, observation, survey
press for achievement	classroom	teacher expectations etc	self-evaluation, observation, survey
access to schooling	school	location and size etc	document review, survey, committee study, external review
press for achievement	school	leadership etc	*School Effectiveness Opinionnaire*, external validation, survey
professional teaching conditions	school	class size etc	document review, survey, *School Effectiveness Opinionnaire*
access to schooling	school system	location, size, assessment base etc	document review, survey
press for achievement	school system	mission, goals, and actions for improvement etc	document review, survey
professional teaching conditions	school system	staff involvement in system decision making etc	document review, survey

Source: Lacombe/Rocky Mountain Project, *Achieving Quality*, 1993, p. 19.

Grande Prairie Public developed prototype school and district profiles to inform stakeholders of the quality of education in its district. The profiles provide information in four areas – student achievement, school climate, quality of instruction, and funding – and will be published annually. The quintessential objective of the school profile is to provide stakeholders with information that is meaningful and useful to them in planning school improvement and measuring the health of their schools (Grande Prairie, p. 40). Beginning with the 1992-93 school year, all schools in the district will produce annual profiles. These are an important mechanism for focusing improvement efforts and informing stakeholders about the quality of education in the district.

Lethbridge Public developed a collaborative model for school and program evaluation. This district concluded that limited changes were realized by predominantly external evaluations because teachers and school-based personnel were not actively involved and hence gained little from the experience. A study of the related literature and procedures elsewhere led to the development of a collaborative model to empower school staffs to be actively and professionally involved in their school and program evaluations. The use of educational quality indicators served as a key component of the model (Lethbridge Public, p. 43). The district is continuing to expand the use of this model.

Spirit River developed a collaborative teacher evaluation model. It identified 26 behaviors of effective teaching and grouped them into four areas – planning and preparation, instructional strategies, communication skills, and pupil/teacher relationships. All teachers in the district took part in reviewing the set of 26 teaching behaviors and discussing teacher evaluation. Parents and students were surveyed on the importance of these behaviors from 1990 to 1992. In 1991, teachers were observed on these behaviors and an aggregated composite performance baseline prepared. Behaviors receiving the lowest ratings became the target for professional development activities. Data collection was repeated in 1992 to provide a basis for comparison. Using the same criteria for both formative and summative evaluations has heightened teacher awareness about professional expectations. Student attitudes, achievement and discipline data were also collected. The district is using the data to determine the effect of teaching on student outcomes.

Fort McMurray Catholic implemented the principles of outcome-based education (OBE) in mathematics from grades 2 to 10. The premises of OBE are that all students can learn and succeed, success breeds success, and that schools control the conditions of success. The principles include designing down from significant outcomes, maintaining a focus on these outcomes, holding high expectations for all students, and providing expanded opportunities for learning. Quantitative and qualitative evidence indicated that the OBE process produced positive results in student achievement, responsibility, and attitudes in mathematics. The district is committed to the continuation and improvement of the OBE process.

Synopsis

This section has described major lessons about educational inquiry from the EQI initiative. Each project has contributed to our understanding of important student outcomes of schooling. If schooling is a purposeful activity whose goal is to foster human growth and potential, it behooves us to identify the major outcomes and subsequently find ways to measure whether progress is being made. Broadening desired student outcomes to include the affective, social, and behavioral domains from the currently emphasized cognitive domain will help to redress the imbalance that has led to some of the criticism of our schools. Society invests in public education because it is one of the best ways to promote the social and economic well-being of its citizens. These "investors" consequently have a right to know how well the investment is contributing to their welfare.

Education is a shared responsibility among its major partners – the family, schooling, and society. Collaboration among the partners helps to ensure that our young people develop the knowledge, skills and attitudes we consider important. Partnerships such as the EQI initiative help us come to a common understanding of what is important in education, and how to go about determining if what we are doing is, in fact, having the desired effect. Assessment can take many forms. Alternative strategies that incorporate observation and professional judgment about growth and excellence can increase pedagogical validity in assessment and help us improve the quality of education.

Collaboration in Action

The EQI initiative has not only generated new knowledge about student learning and support, but also about how to introduce innovation into the educational system for maximum impact. We learned a lot about leadership and scope, collaboration, communication, resources, and celebration.

Leadership and Scope

Alberta Education provided leadership in initiating EQI and in inviting leading districts to participate. Leadership was subsequently shared among the participants. Strong leadership was required from all the partners – Alberta Education, coordinators and their teams, and superintendents. Local leadership was essential for completing the individual projects.

The scope of EQI was an important feature in its success. The conceptual framework is broad and allowed districts to choose aspects that interested them. While each project individually contributed to our understanding about important outcomes of schooling and conditions that enhance student learning, none alone is as powerful as all of them together. Each project also added to our appreciation of the complexity of the issues involved in defining important outcomes, measuring them, and informing different audiences about results. Since each project represents a particular community, the commonalities become the basis for collective action while unique interests remain local prerogatives.

Districts are the natural partners with the provincial government to introduce change because they are empowered to deliver education to students. Since districts can act quickly to make changes in their schools, adoption is faster, more effective and more efficient than if an external agency had been engaged to develop an indicator system which the province could subsequently adopt, adapt or ignore. By collaborating with districts, the change agents are already in place and assume responsibility for adoption. Since the districts have been actively involved, they have a vested interest in the outcomes and are proceeding accordingly.

Collaboration

Collaboration was the modus operandi of the EQI initiative whose motto was "Collaboration in action". This motto, together with the logo, a stylized wild rose whose petals represent each of the ten projects, graces the cover of all final EQI reports. Alberta Education is at the

centre because its coordinating function touched all ten projects concurrently. Symbols represent the essence of what is important and the relationships among parts.

EQI is the single largest cooperative project in Alberta dealing with educational indicators. A 1991 survey of project teams indicated that 17,000 Albertans were directly involved in the development and field testing of the indicator systems. Two thirds of the participants were students and a quarter were members of the community – parents, stakeholders, the public. The community was involved in providing perceptions of what is important in education. Participation (1,300 teachers and more than 4,000 members of the community) is an important ingredient in the successful implementation of an indicator system. The EQI initiative has become a model for collaboration between government and school jurisdictions.

The EQI initiative was successful because it gave participants a chance to explore areas they considered important. While there is general agreement that better information can help to improve education because it focuses attention on the significant outcomes of schooling, there is considerable diversity in thinking about what these outcomes are and how to go about determining whether they have been achieved. By giving participants the opportunity to explore what they thought was worthwhile, in cooperation with their local communities, the end result is a consensus of what is generally important.

A community shares values, goals, priorities and expectations. Four of the projects took place in two cities – Lethbridge and Fort McMurray. Despite this common community, each participating district selected aspects which interested it. In Fort McMurray this ranged from social skills (public district) to mathematics achievement, responsibility and attitudes (Catholic district). In Lethbridge, the Catholic district examined the affective domain while the public district developed school and program evaluations. Although both metropolitan projects focused on performance assessment, Calgary Public and Catholic concentrated on exemplars while Edmonton Public examined student growth.

This opportunity to pursue district interests resulted in local ownership and commitment to individual projects, with acceptance and appreciation of the areas explored by the other projects. The synergy among the partners helped to affirm the collective work of the initiative.

Communication

Communication was an essential ingredient for successful integration of the projects. It took many forms and helped to promote the partnership among the participating jurisdictions.

Internal Communication – EQI partners met regularly to exchange ideas, trends, issues and techniques. These semiannual meetings served to maintain personal contact among the key participants – project coordinators, superintendents, and Alberta Education staff – and to share information, discuss and interpret findings, and identify issues and strategies. Participants were able to discuss concerns in a safe, supportive environment where people offered constructive suggestions rather criticized the work. This setting encouraged members to share experiences in an honest and forthright manner. The meetings also established milestones that motivated people to meet deadlines.

A local team was responsible for each project. Teams met regularly and selected members to provide alternative perspectives to help in ensuring a broad consensus for desired outcomes. Some of the projects expanded team membership to people in the community.

The *Collaborator* was a quarterly newsletter introduced as a communications mechanism for the project teams and Alberta Education, and was available to others upon request. It informed readers of important events and provided an outlet for coordinators to contribute articles about their projects. Each June issue contained an annual status report. The *Collaborator* also provides a record of the EQI initiative.

External Communication – It was also important to inform others about developments. Project teams routinely communicated with their boards about progress, and presented workshops and sessions to colleagues, associations and other organizations through meetings, conventions and conferences. Alberta Education also informed others of the initiative through its newsletter *infocus*, distribution of materials to educational organizations in Alberta and across Canada, and participation in local, provincial, national and international meetings and conferences.

Five teams participated in a symposium at the 1990 meeting of the Canadian Society for the Study of Education in Victoria and seven teams took part in the 1992 meeting in Charlottetown. The proceedings of this second symposium have been published in the June 1993 issue of the *Alberta Journal of Educational Research*. In addition, requests for information about EQI have come from governments, school jurisdictions, universities and other organizations across Canada, the United States, Europe, Asia and Australia.

Celebrating Success – The formal conclusion of the initiative was celebrated at the January 1993 EQI Conference. Organized by the Conference of Alberta School Superintendents (CASS), the conference provided an opportunity for the ten project teams to present the materials they developed and the results achieved over the past three years. It was the first time that Alberta Education held a conference on a research endeavor, and the first time that CASS organized such an event for an Alberta Education initiative. The conference attracted Alberta superintendents, trustees, directors, departmental staff, and school district and government officials from other provinces. The opportunity for delegates to discuss findings with the project teams firsthand contributed substantially to the interest in the projects. In addition to showcasing the EQI projects, it provided a powerful incentive for the project teams to complete their reports because summaries were published in *Achieving Quality*, which was released at the conference. This report attracted much wider interest than had it been distributed solely through our usual release procedures.

Celebrating the completion of an initiative this way is a major recommendation. Project teams worked extremely hard and deserved the accolades of their peers on a job well done. It also set up the communication and dissemination phase in a positive manner that encourages others to try the fruits of the labor. The conference marked the formal conclusion of the initiative, but the beginning of a new era of cooperation among educational partners interested in improving education.

Resources

No discussion of research, development and reform is complete without addressing the resource issues. The major resources are staff, dollars, information, professional development, support and time. Anyone wishing to embark on a major initiative should marshal the necessary resources for an extended period of time to ensure success.

Staff – Participants who are interested in and committed to a project and have the necessary expertise should be invited to volunteer. Lack of involvement in and commitment to such an undertaking may lead to attempts to thwart a project. Therefore, teams should be selected carefully to ensure project viability. Staff turnover is inevitable. It is imperative that provision be made for staff transitions. When there are several people working on a project, the disruption is minimized because another can assume leadership of the group. However, changes in leadership usually result in changes in emphases and procedures. This is particularly the case when the superintendent changes.

Community involvement is also recommended. Without shared expectations and the support of the community in the determination of goals, priorities and expectations for its students, a local school jurisdiction may not address the questions its constituents want answered. All EQI projects involved their communities to enhance credibility.

Information – This is an essential resource for informed discussion. Alberta Education provided technical documents to support the EQI initiative. It produced an annotated bibliography, a methodological report, and an inventory of assessment instruments. Furthermore, it provided professional development activities on these documents at the semiannual meetings. Considerable time was also spent on how to communicate results to diverse publics. Updated information was also provided.

Support – The investment of $1 million in the ten projects provided an incentive to get school jurisdictions involved in promoting results-based education. The participating districts contributed resources in kind. Provincial coordination and support of the EQI initiative were important to keep the projects – rich in diversity of goals, outcomes, and approaches – focused on the desired result – better information to improve the quality of education. An external review at the midpoint provided another perspective on the emerging indicators and approaches.

Local support was also important. Superintendents who were actively involved in the project ensured that the team had the resources required to complete the tasks effectively and efficiently. Where the superintendent played a less visible part, the project had a lower profile in the district.

Time – The importance of time cannot be underestimated. The EQI initiative is now five years old. It took a year to develop the conceptual framework, implementation plan and the Terms of Reference, and to initiate the projects and organize the infrastructure. The projects were given three years of funding because experience with projects of this magnitude indicates that it takes about this much time to accomplish desired results barring undue changes in staff. Teams spent the first year developing their indicator systems, a year to field test their prototypes and a year to refine and complete their projects. Despite changes in project coordinators, superintendents, and three years of change in Alberta, the initiative met its target and was completed on time. This fifth year is one of completing the documentation and promoting the results.

Invariably, tasks take longer to complete than anticipated. This is due largely to underestimating the work involved, competing priorities, and intruding activities that are outside of the control of the person charged with completing the assignment. The distinction between time needed and time available is also an issue. Whereas a task may require a week of work, the elapsed time could be spread over a number of weeks. The longer the elapsed time, the more likely that other priorities interfere with completion. Keeping people motivated and on task is difficult and requires considerable organizational and negotiation skills. Coordinators who were assigned exclusively to their EQI project were more successful in this regard than those who divided their time among other responsibilities.

Timeliness is an important criterion in the value and usefulness of information. The semiannual meetings required project updates and the annual published status reports were inducements to adhere to the project timelines. All opportunities to hone writing skills helped project coordinators complete their reports. Documentation is demanding and very time-consuming, yet essential for others wishing to replicate a particular project.

A number of timing issues remain. For example, should students be sampled or should the results be based on a census? Which outcomes should be measured annually and which periodically? Collecting information about the conditions (context, inputs, processes) may not disrupt instructional time, but can exact a toll in terms of collecting, analyzing and reporting results. Deploying more staff to complete these tasks can reduce elapsed time but may result in less accuracy because of the greater number of people working on different parts. Competing demands of accuracy and timeliness become a major issue.

Recommendations

The following recommendations summarize the lessons from the EQI initiative regarding how to maximize the impact of large-scale research projects.

Table 3

Recommendations for Maximizing the Impact of Large-Scale Projects

1. Leadership	Strong leadership is required to introduce an innovation. Leadership should be shared among all participants for maximum impact. Working with change agents directly rather than through an intermediary organization improves effectiveness and efficiency.
2. Scope	A broad conceptual framework which permits selection of specific components for intensive investigation encourages creativity. It also makes the work load manageable. Several projects focusing on different aspects of a framework contribute significantly to the understanding of the whole.
3. Collaboration	This is the preferred modus operandi because it invites participation and develops ownership and commitment. All who have an interest in the project should be involved – students, teachers, administrators, parents, trustees, stakeholder groups, government officials, and the public.
4. Communication	This is an essential ingredient for successful implementation. There should be a variety of communication strategies and media – both formal and informal verbal, print and multimedia.
5. Staff	Staff who have an interest in, commitment to and the necessary expertise should be invited to take part. Voluntary participation promotes success. Motivation becomes essential as the tasks become more challenging.
6. Finances	Adequate financial resources should be provided to complete a project on time. Resources in kind, such as releasing staff members from current obligations to undertake new tasks, reassigning priorities for existing staff and financial commitments, and eliminating redundant or unproductive activities, provide alternatives where money is unavailable.
7. Information	Informed discussion requires information. Experts can help identify sources and provide advice. Available information from the literature and other sources should form the basis of the work. This resource helps to focus on the important aspects of the project.
8. Support	This is essential at all levels – government, trustees, superintendent, principal, teachers, students, parents, the public.
9. Time	This resource cannot be underestimated. Ensure adequate time by organizing the work, assigning adequate resources to ensure completion, and milestones to encourage adherence to deadlines.
10. Celebration	Recognize stages of achievement in a variety of ways and celebrate the completion to honor participants and to encourage continuation and adoption.

Provincial Implementation

Alberta Education is committed to implementing a set of provincial indicators. The EQI initiative is one of the projects designed to promote open information to help stakeholders address issues and realistically set improvement targets. Other provincial initiatives focusing on reporting results include the *Vision for the nineties ... a plan of action* (1991), which established priority directions, and its annual progress report entitled *Achieving the vision*. The new province-wide electronic Student Information System will include all students from Early Childhood Services to grade 12 by the fall of 1995; this will facilitate analysis and tracking of student results over time.

The three-year EQI projects can be considered as Phase I of a reform strategy that may well take a decade to implement fully. The partnership identified ten indicators that participants felt could comprise a set of provincial indicators which encompasses the cognitive, affective and behavioral domains measured in multiple ways by different people. This broad range of outcomes provides a better picture of the desired outcomes of schooling. Asking parents, teachers, and the public how well students are achieving selected outcomes helps to confirm the results. It can also help to improve student learning by involving stakeholders in the educational enterprise.

The next steps involve promoting the outcomes of the EQI initiative. The project teams are using the materials they have developed; they are continuing their collaboration by incorporating materials and strategies from the other projects in their districts as well. Many friendships developed among partners over the three years which will ensure continuing dialogue on indicators and ways to improve education. Teams are also presenting their materials to teachers and administrators at professional development days, teachers' conventions and conferences.

Alberta Education is promoting and extending the work of the EQI initiative by publishing the reports and handbooks, keeping it on the provincial agenda, establishing a Provincial Advisory Committee, and expanding the EQI network to involve other interested school jurisdictions. The twelve participating districts represent 8% of the 143 districts in Alberta. The department intends to continue discussion with all Alberta school jurisdictions on which common indicators are important to report. Results on this set will then be published and made available to the public by all districts through their Annual

Education Report. Common indicators are essential for comparing results and for interpreting them in light of the local context and decisions regarding the allocation of resources. Districts will continue to publish other information they feel is important to their local community as well.

Quality is high on the public agenda in Canada. On a national survey of the public's views and attitudes on education, one in five respondents (18%) mentioned the overall quality of education as a critical issue, with another 10% suggesting that more attention should be focused on "the basics" and 7% urging reform (Angus Reid, 1993, p. 11). This poll of 1,504 adult Canadians found that 46% felt that the quality of education was worse today than it had been 25 years earlier; this assessment has deteriorated since the 1986 poll which found 36% felt that education was worse than a quarter century earlier (ibid, pp. 17-18). Public perceptions are often formed on the basis of opinion and media coverage, and in the absence of solid data reporting trends over time. Educational organizations can help to focus the debate by providing sound information from multiple sources. Indicators that are agreed upon by stakeholders and tracked over time to establish trends are a way to inform the public of the outcomes of education.

Conclusions

The EQI initiative has had a positive impact on education in Alberta. The twelve participating districts have incorporated concepts, strategies and materials into their operations. This has resulted in changed policies, refocused priorities, and improved instructional and organizational practices. Alberta superintendents have embraced the idea of indicator systems and many are using the EQI materials. The department is also incorporating ideas and strategies into its information system. We have essentially completed Phase I of a provincial reform strategy to improve education by enhancing information for better planning, policies, practices and decisions. There has been much interest in EQI with many requests for *Achieving Quality*.

What have we learned from the Educational Quality Indicators initiative? We learned that a large-scale reform initiative focused on producing better information about education can help to improve education. A rich diversity of approaches to developing and implementing indicator systems within the framework of a multidimensional model of education resulted in many innovative ways to define important outcomes of schooling and ways to measure them.

There is no single ideal indicator system nor is such a tool a panacea for education. A useful indicator system, however, focuses on student outcomes, is based on important goals of schooling and desirable personal characteristics, represents a balance among cognitive, affective and behavioral outcomes, and includes multiple measures, levels of analysis and perspectives. Educational indicators can provide better information to help improve education. They can provide a more balanced picture of the operation and outcomes of schooling, particularly if they focus on a broader range of desired outcomes. By focusing on student learning, and interpreting and reflecting on the findings, better decisions about schooling will result.

The collaborative quest underscored the complexity of education and generated creative solutions to some of the issues facing education. Collaboration, communication and commitment were the hallmarks of effective implementation.

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